

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. Copy should be sent direct to the British Co-editor (R. C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge, England).

Acta Crystallographica: important notice

The Executive Committee regrets that the growing size of this journal and rising costs of production make an increase in price unavoidable. As from the beginning of Volume 5, to be published in January 1952, the subscription price per volume will be £5 or its equivalent in other currencies. At the same time it is hoped to make arrangements whereby individual crystallographers may obtain the journal for their private use at the reduced subscription of £3. Details of this scheme will be announced as soon as possible.

Readers are reminded that subscriptions to the current volume expire on the appearance of Part 6 to be published on 10 November 1951. To ensure continuity of supply, orders for Volume 5, with remittance, should be placed through the usual channels as soon as possible,

and in any case in time to reach the publishers in London not later than 31 December 1951.

International Union of Crystallography

The Second General Assembly and International Congress of the Union was held in Stockholm from 27 June to 3 July 1951 and was followed by Symposia on Advanced Techniques in Structure Determination and on Electron Diffraction in Liquids and Gases held on 4 and 5 July 1951. A brief account of the proceedings at these meetings will be published later, but detailed abstracts of the 230 papers read at the Congress and Symposia may be obtained from the Secretary of the Local Committee (F. E. Wickman, Stockholm 50, Sweden), price 7 Swedish kronor, post free.

Book Reviews

Works intended for notice in this column should be sent direct to the Editor (P. P. Ewald, Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn 2, N.Y., U.S.A.). As far as practicable books will be reviewed in a country different from that of publication.

An Index of Mineral Species and Varieties Arranged Chemically, with an Alphabetical Index of accepted Mineral Names and Synonyms.

By M. H. HEY. Pp. xx+609. London: printed by order of the Trustees of the British Museum. 1950. Price 30s.

This useful and convenient work of reference comprises two main parts: a catalogue of minerals arranged according to their qualitative chemical composition, and an alphabetical list of about 12,000 mineral names. For each of the names in the latter list a reference is given to standard text-books or to periodicals where a summary description can be found. The status of the name as a species, variety or synonym also is indicated, and a finding-number is cited to the chemical catalogue. The chemical catalogue is essentially a determinative scheme based on qualitative analysis. The classification employed is based primarily on a separation into anions and then into metals arranged in the order of the periodic table. The silicates, comprising about one-third of all entries, are arranged differently. These are broken down into four special groups: silicates with other anions, silicates not containing aluminum, silicates containing aluminum and no other metal, and silicates containing aluminum and other metals. The main categories of classification and the individual substances entered therein are numbered. Anorthite, $\text{CaAl}_2\text{SiO}_7$, thus has the finding-number 16.9.2 [section 16 (silicates containing aluminum and other metals), subsection 9 (aluminosilicates of calcium), entry 2 following gehlenite, $\text{Ca}_2\text{Al}_2\text{SiO}_7$, 16.9.1]. Cross-references are given whenever they are of value, as in the case of minerals containing two or more different anions.

The general handling of the chemical formulation is accurate and critical, and attests to the author's wide knowledge of mineral chemistry. Among the very few errors of fact noted may be mentioned the listing of uraconite as a species instead of as a synonym of uranopilite, and the classification of meta-autunite and metatorbernite as varieties of autunite and torbernite, respectively. The structure study of Beintema (1938) has shown that the meta phases are distinct hydrates, and at least meta-torbernite occurs as a species in nature.

Virtually all known mineral names are included in the chemical catalogue, whether good, bad or indifferent. The general status of the name is indicated by type size or textual comment, and a concise, documented discussion is frequently given of substances whose relations are problematic. A number of named artificial compounds are included. It seems unfortunate that Dr Hey has rejected Schaller's scheme of adjectival modifiers to describe compositional variation in minerals. The systematization of nomenclature in this way is a natural expression of the modern concept of minerals as phases that vary serially in composition between natural limits. It would seem advisable to follow the trend toward fewer and more meaningful names, rather than to preserve the chaotic nomenclature that has stemmed largely from the older notion of species as constituting phases of essentially fixed composition.

The necessarily brief and sometimes inadequate indication of the status of the names included in the chemical catalogue may cause trouble for a non-specialist who, concerned with a practical problem of identification, may run a substance down through the classification and then unknowingly be confronted, not with an identification,

but with what amounts to a research problem perhaps involving the re-examination of type material and the resolution of a knotty tangle of nomenclature as well. The specialist will find the work invaluable for much the same reason. Hey's *Index* is a boon to the professional mineralogist, and is highly recommended to anyone who wishes to find quickly the chemical composition and descriptive literature of the known minerals.

CLIFFORD FRONDEL

*Mineralogical Laboratory
Harvard University
Cambridge, Mass., U.S.A.*

Structural Inorganic Chemistry. By A. F. WELLS.

Pp. xx+727, with 237 figs. Oxford: Clarendon Press. 2nd ed. 1950. Price 35s.

Hardly any scientific tool has been of greater importance for the progress of inorganic chemistry than X-ray crystallography. Although this branch of science has now been practised for nearly forty years, many chemists still seem to be somewhat bewildered by its consequences. To a large extent this is due to the fact that X-ray crystallography has proved to be a key to a formerly practically unknown field of chemistry, the solid state, where the structures are often fundamentally different from those of the finite atom groups previously studied in liquids or gases. It is, therefore, extremely important that text-books should be written to present the results of X-ray crystallography, and this in a way understandable to the chemists. One of the causes of the slow adoption of new structural conceptions is undoubtedly the difficulty generally experienced by chemists in understanding the language of crystallography.

It was said of the first edition of Dr Wells's book that, although its title was *Structural Inorganic Chemistry*, it was more a study of the structure of the solid state. This criticism was not so serious where the descriptive, systematic part of the book was concerned, because such an enormous part of our present knowledge of inorganic structures is derived from the solid state. On the other hand, the general part of the book undoubtedly confined the treatment of the subject too much to purely structural aspects. This limitation has been removed to a great extent in the present second edition, where the basis of the general treatment has been widened considerably. But the difficulty of giving a condensed presentation of some parts of the basic material is rather obvious. This applies, for example, to the chapters dealing with the nature of the

chemical bond. The section on X-ray diffraction, which has such a direct bearing on crystal-structure determinations, is still treated very briefly. The author certainly does not underestimate the immense value of X-ray diffraction methods; rather he appears to think that their importance necessitates reference to special text-books.

A reviewer cannot help observing that the different parts of the text are still not sufficiently co-ordinated. This leads, among other things, to unnecessary repetitions, and sometimes obscures important general lines. Why, for example, does the author resume the discussion of many of the general characteristics of solid solutions when he comes to the last chapter of the book (metals and alloys)? Most of this discussion is included already in the general part, and some problems, e.g. order-disorder phenomena and superlattices, are of such general application that they should have been considered earlier.

The nature of the metallic bond is not treated in the general part of the book but is discussed in connexion with the systematic description of metals and alloys. This in itself is of little importance, but it is more serious that the depth of the treatment does not do justice to the modern advances in this field, nor to the importance of this type of chemical bond relative to other types.

It is quite natural that about 70% of the book (488 out of the 709 text pages in the second edition) is devoted to a systematic description of inorganic substances. This part is certainly suitable for giving a non-crystallographer a fairly complete knowledge of the structural work hitherto accomplished. Such a reader will certainly have no difficulty in following the text, which is also elucidated by figures which are generally very clear and well drawn. In spite of this, however, he will no doubt find the reading rather dry; but dryness is probably extremely difficult to avoid in a presentation of this kind.

The wide field covered by the book also makes it useful as a reference work for a person more closely interested in inorganic structures. This could hardly be said of the first edition, where all references to the literature were given in a short list at the end of the book, and without any connexion with the text. In the new edition the references are five times as numerous and have been inserted in the text. This means a marked increase in the usefulness of the book. In some instances, however, one still has the impression that the information concerning relevant literature is not quite adequate.

G. HÄGG

*Institute of Chemistry
University of Uppsala, Sweden*

Books Received

The undermentioned works have been received by the Editors. Mention here does not preclude review at a later date.

Gmelins Handbuch der anorganischen Chemie.
Antimon A3. Pp. 49, with 6 figs. Weinheim:
Verlag Chemie. 8th ed. 1950. Price DM. 16.50.

Gmelins Handbuch der anorganischen Chemie.
Platin A6. Pp. 35, with 138 figs. Weinheim: Verlag
Chemie. 8th ed. 1951. Price DM. 36.